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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/576,179	05/23/2000	Udo Gort	PM268103/990049PK	3953

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EXAMINER

LEE, RIPA

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 05/09/2003

lb

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/576,179

Applicant(s)

GORL ET AL.

Examiner

Rip A. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 16-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 16-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 26, 2003 has been entered.

Claims 1-5 and 16-18, which remain for prosecution, were amended. Notably, the independent claim was amended to include a lower limit of filler at 400 phr.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1, 2, 5, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,788,231 to Smigerski *et al.* in view of Görl *et al.* (*KGK Journal*) for the same reasons set forth in the previous office action (see Paper No. 10).

Smigerski *et al.* discloses pourable powdered rubber containing filler. Fillers which can be used in the invention include the carbon blacks and inorganic substances such as silica (col. 3, lines 26-32). The amount of filler used ranges from 20-1000 phr (col. 3, line 34), and combinations of carbon black and light-colored fillers are possible. It would have been obvious, based on these facts, to one having ordinary skill in the art to use common fillers carbon black and silica in amounts that do not exceed 1000 phr. One having skill in the art would readily envision use of 500 phr of carbon black and 500 phr of silica because, according to Smigerski *et al.*, such an embodiment is feasible. It follows that the skilled artisan would find it obvious to arrive at the filler of the present claims. However, the reference is silent with respect to use of coupling agents.

The topic of the journal article by Görl *et al.* concerns rubber powders. Fillers such as carbon black and silica are used in an amount of 40-1000 phr (pages 251-252). Figures 4, 5 and 7 depict the production stages in the manufacture of rubber compounds in which both fillers are incorporated into the rubber composition. Hence, it would have been obvious to one having ordinary skill in the art to use carbon black and silica in amounts that do not exceed 1000 phr. Furthermore, Görl *et al.* teaches the importance of the use of a bifunctional coupling agent such as *bis*(3-triethoxysilylpropyl)tetrasulfane for overcoming the large differences in polarity between silica and rubber (page 252 and Figure 2). Incorporation of coupling agents results in better dispersion of silica into the rubber, which in turn, improves processing (see page 252).

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Therefore, it would have been obvious to one having ordinary skill in the art to use coupling agents in those rubber compositions which also contain silica.

Smigerski *et al.* discloses the use of rubbers such as styrene-butadiene copolymer and ethylene-propylene-diene rubber (col. 2, lines 66-68), and therefore, one having skill in the art would find it obvious to use these materials. Claims 5 and 18 are obvious to the skilled artisan because Smigerski *et al.* teaches that the particle size distribution of the product is less than 10 mm, preferably ranging from 0.050-5 mm (col. 5, lines 10-12). It would have been obvious to one having ordinary skill in the art to expect rubber particles within the claimed range when using the process of the prior art.

5. Claims 1-3, 5, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smigerski *et al.* in view of U.S. Patent No. 5,159,009 to Wolff *et al.* for the same reasons set forth in the previous office action.

The discussion of the disclosures of the prior art of Smigerski *et al.* from paragraph 6 of this office action is incorporated here by reference, and in view of said discussion, it would have been obvious to one having ordinary skill in the art to use common fillers carbon black and silica in amounts that do not exceed 1000 phr. As such, it would have been obvious to one having ordinary skill in the art to arrive at the claims of the present invention because, according to the prior art, such an embodiment is feasible. Smigerski *et al.* does not teach the use of coupling agents and processing aids.

Wolff *et al.* teaches the use of coupling agents of general formula (I), $[R_n^1(RO)_{3-n}Si-(Alk)_m-(Ar)_p]_2[S]_x$, for modifying the surface of carbon black in rubber compositions. As is well

known in the art, coupling agents facilitate homogeneous dispersion of filler into the resin matrix, which in turn, results in product with improved modulus and tensile strength (col. 6, lines 53-56). Thus, with respect to claim 1, it would have been obvious to one having ordinary skill in the art to use the coupling agent of Wolff *et al.* in the composition of Smigerski *et al.* in order to achieve optimal properties.

Regarding the remaining claims, Smigerski *et al.* discloses the use of SB rubber for preparing rubber powders with a particle size distribution ranging from 0.050-5 mm. Wolff *et al.* also teach the use of coupling agents with general formulae $R_n^1(RO)_{3-n}Si-(alkyl)$ and $R_n^1(RO)_{3-n}Si-(alkenyl)$, as well as vulcanization promoters such as ZnO, anti-aging agents, and auxiliary processing aids (col. 3, lines 61-68 and col. 4, line 11). It would have been obvious to one having ordinary skill in the art to use the same materials since they are adequately disclosed in the prior art.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smigerski *et al.* in view of Wolff *et al.* as applied to claims 1-3, 5, and 16-18 above, and further in view of U.S. Patent No. 5,216,055 to Goerl *et al.* (see also Paper No. 10).

The discussion of the disclosures of the prior art from paragraph 5 of this office action is incorporated here by reference. Neither reference teaches the use of flame retardant materials in the compositions. The desire to impart flame retardant properties to a material is apparent. The Goerl *et al.* disclose the use of magnesium and aluminum hydroxides as reagents of choice for imparting flame retardant properties to synthetic and natural rubbers (col. 1 – col. 2 and claims). Therefore, it would have been obvious to one having ordinary skill in the art to incorporate

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magnesium hydroxide or aluminum hydroxide into the rubber material of Wolff *et al.* in order to render it flame retardant.

7. Claims 1, 3, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,250,082 to Sommer *et al.* in view of U.S. Patent No. 5,159,009 to Wolff *et al.*

Sommer *et al.* discloses a pulverulent rubber filled rubber prepared by single precipitation of a mixture of rubber latex and filler suspension (claim 1). According to the inventors, carbon black filler may be used in the amount of 20-400 pw (col. 3, line 37; claim 7). However, white filler such as silica can also be incorporated (col. 3, line 34) in an amount of 20-500 pw (claim 7). Combinations of carbon black and white filler, within the limits stated for the individual components are also possible. Therefore, use of 400 pw carbon black and 500 pw of silica is well within the scope of the invention of Sommer *et al.* The reference does not teach use of coupling agents and processing aids.

These materials are well known in the art. For instance, Wolff *et al.* teaches the use of coupling agents of general formula (I), $[R_n^1(RO)_{3-n}Si-(Alk)_m-(Ar)_p]_2[S]_x$, for modifying the surface of carbon black in rubber compositions. As is generally appreciated by those skilled in the art, coupling agents facilitate homogeneous dispersion of filler into the resin matrix, which in turn, results in product with improved modulus and tensile strength (col. 6, lines 53-56). Thus, with respect to claim 1, one having ordinary skill in the art would have found it obvious to use the coupling agent of Wolff *et al.* in the composition of Smigerski *et al.* in order to achieve optimal properties.

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The skilled artisan would also find it obvious to use processing aids such as ZnO and stearic acid, as well as sulfur vulcanization aid in order to arrive at the subject matter of present claim 3 because Sommer *et al.* clearly discloses use of these materials in Examples 9-11 (see accompanying Table, col. 11). The compounds of claims 16 and 17 are obvious in view of the disclosure of Wolff *et al.*; therefore, one having skill in the art would find it obvious to use these materials in the composition of Sommer *et al.*

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sommer *et al.* in view of Wolff *et al.* as applied to claims 1, 3, 16, and 17 above, and further in view of U.S. Patent No. 5,216,055 to Goerl *et al.*

The discussion of the disclosures of the prior art from the previous paragraph is incorporated here by reference. Neither reference teaches the use of flame retardant materials in the compositions. The desire to impart flame retardant properties to a material is apparent. The Goerl *et al.* disclose the use of magnesium and aluminum hydroxides as reagents of choice for imparting flame retardant properties to synthetic and natural rubbers (col. 1 – col. 2 and claims). Therefore, it would have been obvious to one having ordinary skill in the art to incorporate magnesium hydroxide or aluminum hydroxide into the rubber material of Wolff *et al.* in order to render it flame retardant.

Response to Arguments

9. The Applicants traverse the three rejections set forth in the previous office action, and in particular, the rejection of claims 1-3, 5, and 16-18 under 35 U.S.C. 103(a) as being unpatentable over Smigerski *et al.* in view of U.S. Patent No. 5,159,009 to Wolff *et al.* The Applicant's arguments have been considered fully, but they are not persuasive.

While Smigerski *et al.* do not show compositions in which the filler is present in an amount of greater than 400 phr, it must be kept in mind that the examples are non-limiting illustrations of the invention (see Smigerski *et al.*, col. 8, lines 25-27). Since the prior art reveals the use of combinations of carbon black and light-colored filler (*i.e.*, silica) in amounts that do not exceed 1000 phr, it is maintained that one having skill in the art would readily envision use of 500 phr of carbon black and 500 phr of silica based on the claims and general disclosure. It follows that the skilled artisan would find it obvious to arrive at the filler of the present claims.

Applicants remarks regarding the product-by-process recitation have been considered. While the claim is made that the two processes in comparison allegedly result in the formation of rubber powders with different structural features, it is noted that the present claims are drawn to a rubber powder with a specific composition. The dependent claims are relate to the chemical constitution of the powder. There is no limitation or claim drawn to a particular architectural or structural feature, and the specification is devoid of such descriptions. As such, it is maintained that the subject matter of the present claims is still met by the prior art.

In view of the discussion above, the rejections of record have not been withdrawn.

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The prior art made of record but not relied upon is considered pertinent to the Applicant's disclosure. These references are cited to show the state of the art with respect to rubber powder compositions.

U.S. Patent No. 6,548,584 to Görl *et al.*

U.S. Patent No. 6,340,724 to Görl *et al.*

U.S. Patent No. 4,883,829 to Smigerski *et al.*

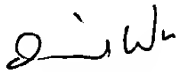
U.S. Patent No. 4,828,714 to Smigerski

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (703)306-0094. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (703)308-2450. The fax phone number for the organization where this application or proceeding is assigned is (703)746-7064. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

ral

May 6, 2003


DAVID W. WU
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